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EXAMINER	
CUTLER, ALBERT H	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,027	LIAO ET AL.	
	Examiner	Art Unit	
	Albert H. Cutler	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to application 10/811,027 filed on March 26, 2004. Claims 1-22 are pending in the application and have been examined by the examiner.

Specification

2. A substitute specification **including** the claims is required pursuant to 37 CFR 1.125(a) because much of the disclosure is incomprehensible. For example, paragraph 0003 recites "Due to the physical restriction on the color of feeling and sensitization velocity, so that we hoodwink easily". Claim 10 recites "wherein said light senor device is used for an captured image instrument, said images capture instrument come with a monitor".

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

3. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

Claim Objections

4. Claims 1, 3, 5, 7, 8, 10, 11, 13-17, and 19-22 are objected to because of the following informalities: Lack of clarity and precision.

Claims 1, 11, and 17 recite "The main illuminant determinative method". Please change these claims to read "**A** main illuminant determinative method". Appropriate correction is required.

Claim 3 recites "said integer times" when no integer times have been previously recited in claim 3, or the parent claim 2. Appropriate correction is required.

Claim 5 recites "said greatest" and "said smallest" when no greatest or smallest values or variances have been previously recited in claim 5, or the parent claim 2. Appropriate correction is required.

Claim 7 recites "said greatest" and "said smallest" when no greatest or smallest values or variances have been previously recited in claim 7, or the parent claim 2. Appropriate correction is required.

Claim 8 recites "said greatest" and "said smallest" when no greatest or smallest values or variances have been previously recited in claim 8, or the parent claim 2. Appropriate correction is required.

Claim 10 recites "said length of time exposure", when no length of time exposure has been previously recited in claim 10, or the parent claim 1. Appropriate correction is required.

Claim 13 recites "said largest variance" when no largest variance has been previously recited in claim 13, or the parent claim 12. Appropriate correction is required.

Claim 14 recites "said greatest" and "said smallest" when no greatest or smallest values or variances have been previously recited in claim 14, or the parent claim 12. Appropriate correction is required.

Claim 15 recites "said greatest" and "said smallest" when no greatest or smallest values or variances have been previously recited in claim 15, or the parent claim 12. Appropriate correction is required.

Claim 16 recites "said greatest" and "said smallest" when no greatest or smallest values or variances have been previously recited in claim 16, or the parent claim 12. Appropriate correction is required.

Claim 19 recites "said integer times" when no integer times have been previously recited in claim 19, or the parent claim 17. Appropriate correction is required.

Claim 20 recites "said greatest variance" when no greatest variance has been previously recited in claim 20, or the parent claim 17. Appropriate correction is required.

Claim 21 recites "said smallest variance" when no smallest variance has been previously recited in claim 21, or the parent claim 17. Appropriate correction is required.

Claim 22 recites "said tolerable range" when no tolerable range has been previously recited in claim 22, or the parent claim 17. Appropriate correction is required.

5. Claims 1-22 are objected to because of the following informalities: **Multiple grammatical errors**. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 11-17, and 19-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Hofer et al.(U.S. Patent 6,989,860).

Consider claim 11, Hofer et al. teach:

The main illuminant determinative method under multi-light, environment (figure 6, column 3, lines 50-51, column 4, line 25 through column 7, line 50), comprising the steps of:

using a light sensor device to measure at least two illumination values of light source of environment at different time points(Step 602, figure 6, column 4, lines 49-61, column 7, lines 33-35. Two exposures(i.e. illumination values) are taken at different

points in time. Illumination values are measured in terms of brightness, or alternatively in terms of contrast, depending of the embodiment.); and

determining a main light source of the environment according to said at least two illumination values(See figure 6, steps 604-616, column 7, lines 44-50. The main light source is determined as being naturally light, incandescent light, or fluorescent light.).

Consider claim 12, and as applied to claim 11 above, Hofer et al. further teach that the light sensor device is a CCD(column 4, lines 32-34).

Consider claim 13, and as applied to claim 12 above, Hofer et al. further teach:

said main light source is determined as a stable light source if a variance ratio of a difference between said at least two illumination values are smaller than said largest variance of a natural light source(See 608, figure 6. If the variance between two illumination values is smaller than the first threshold(i.e. the largest variance of natural light, 604), then it is determined that the main light source is a stable natural light source, column 7, lines 44-50.)

Consider claim 14, and as applied to claim 12 above, Hofer et al. further teach:

said main light source is determined as an artificial light source if a variance ratio of a difference between said at least two illumination values are greater than said greatest variance value of a natural light source and greater than said smallest variance value of an artificial light source(See 604, figure 6. The greatest variance of a natural

light source is the same as the smallest variance of an incandescent artificial light source. Therefore, if the variance of the light source is above the largest variance of a natural light source and the smallest variance of an artificial light source(i.e. the incandescent source), then the main light source is determined to be an artificial light source such as an incandescent source or fluorescent source, column 7, lines 44-50.).

Consider claim 15, and as applied to claim 12 above, Hofer et al. further teach:

said main light source is determined as a stable light source if a variance ratio of a difference between said at least two illumination values are greater than said greatest variance value of a natural light source and smaller than said smallest variance value of an artificial value, and said different of two illumination values with one of an illumination ratio value under said two illuminations value are smaller than a predetermining value. (See figure 6. If the variance of the illumination values are greater than the greatest value of a natural light source(step 604), and smaller than smaller than the smallest value of the artificial fluorescent light source(610), and the variance is smaller than a predetermined value(i.e. threshold 2), then the main light source is determined to be a stable incandescent source, column 7, lines 44-50.)

Consider claim 16, and as applied to claim 12 above, Hofer et al. further teach:

said main light source is determined as an artificial light source if a variance ratio of a difference between said at least two illumination values are greater than said greatest variance value of a natural light source and smaller than said smallest variance

value of an artificial value, and said difference of two illumination values with a selective illumination ratio value of two illuminations values are greater than a predetermining value(See figure 6. The main light source is determined to be a an incandescent artificial light source if the variance of the illumination values is greater than the greatest value of a natural light source(604), smaller than the smallest variance of a fluorescent artificial light source(610), and greater than a predetermined value(i.e. threshold 1), column 7, lines 44-50.).

Consider claim 17, Hofer et al. teach:

The main illuminant determinative method under multi-light environment(figure 6, column 3, lines 50-51, column 4, line 25 through column 7, line 50), comprising the steps of:

using a light sensor device to measure at least two illumination values of light source of environment at different time points(Step 602, figure 6, column 4, lines 49-61, column 7, lines 33-35. Two exposures(i.e. illumination values) are taken at different points in time. Illumination values are measured in terms of brightness, or alternatively in terms of contrast, depending of the embodiment.); and

comparing a variance ratio of a difference between said at least two illumination values with a first threshold value(See 608, figure 6. If the variance between two illumination values is smaller than the first threshold(i.e. the largest variance of natural light, 604), then it is determined that the main light source is a stable natural light source, column 7, lines 44-50.);

comparing a variance ratio of a difference between said at least two illumination values with a second threshold value(Threshold 2, figure 6, column 7, lines 44-50); and

comparing a variance ratio of a difference between said at least two illumination values with a third threshold value(Column 5, lines 37-58. The variance is also compared to determine the periodicity of the light source. For instance, the exposure length is chosen to correspond to a certain illumination frequency, and the variance is calculated. If the variance is high(i.e. greater than a threshold), then the exposure length does not correspond to the predetermined frequency, and the process is repeated with different exposure length to determine the frequency of the driving AC.).

Consider claim 19, and as applied to claim 17 above, Hofer et al. further teach:

said main light source is determined as an artificial light source, a length of time exposure of said light sensor device is said integer times of 1/100 second or 1/120 second(See table 1, column 5, lines 17-30).

Consider claim 20, and as applied to claim 17 above, Hofer et al. further teach:

said first threshold value is said greatest variance value of a natural light source(see claim 17 rationale).

Consider claim 21, and as applied to claim 17 above, Hofer et al. further teach:

said second threshold value is said smallest variance value of an artificial light source(Threshold 2 is the smallest variance value of a fluorescent artificial light source, figure 6, column 7, lines 44-50.).

Consider claim 22, and as applied to claim 17 above, Hofer et al. further teach:

said third threshold value is determined according to said tolerable range of said light sensor device(If the variance between the two illumination values picked up by the sensor is high, then it is out of the tolerable range said light sensor device, and the process must be repeated, column 5, lines 37-57.).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-10, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofer et al. in view of Yoshida et al.(U.S. Patent 7,164,439).

Consider claim 1, Hofer et al. teach:

The main illuminant determinative method under multi-light environment(figure 6, column 3, lines 50-51, column 4, line 25 through column 7, line 50), comprising the steps of:

using a light sensor device to measure at least two illumination values of light source of environment at different time points(Step 602, figure 6, column 4, lines 49-61, column 7, lines 33-35. Two exposures(i.e. illumination values) are taken at different points in time. Illumination values are measured in terms of brightness, or alternatively in terms of contrast, depending of the embodiment.), and

determining a main light source of the environment according to said at least two illumination values(See figure 6, steps 604-616, column 7, lines 44-50. The main light source is determined as being naturally light, incandescent light, or fluorescent light.).

However, Hofer et al. do not explicitly teach of at least two sensing regions in the image sensor in from which the illumination values are taken.

Yoshida et al. is similar to Hofer et al. in that it is determined whether or not artificial illumination(i.e. flicker) is present(See figure 6, column 14, lines 42-67). Yoshida et al. is further similar in that multiple exposures are taken to make the determination(column 14, lines 58-63).

However, in addition to the teachings of Hofer et al., Yoshida et al. teach the concept of using a CMOS image sensor(column 9, lines 29-40) with at least two sensing regions in the image sensor from which the illumination values are taken(See column 14, lines 60-63. Multiple "fields" can be used to determine illumination. Multiple fields correspond to multiple areas of an imaging device, which are read out at different times within an overall frame period. See figure 8, the image sensor is broken into multiple regions, which can comprise multiple fields.)

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use a CMOS sensor containing multiple regions as taught by Yoshida et al. to perform the illumination determination method taught by Hofer et al. for the benefit of decreasing circuit size and power consumption(Yoshida et al., column 1, lines 25-57), and enabling a faster readout due to only reading out fields rather than entire frames.

Consider claim 2, and as applied to claim 1 above, Hofer et al. do not explicitly teach that the light sensor device is a CMOS sensor device.

Yoshida et al. teach the concept of using a CMOS image sensor(column 9, lines 29-40). See claim 1 rationale.

Consider claim 3, and as applied to claim 2 above, Hofer et al. further teach:

said main light source is determined as an artificial light source, a length of time exposure of said light sensor device is said integer times of 1/100 second or 1/120 second(See table 1, column 5, lines 17-30).

Consider claim 4, and as applied to claim 2 above, Hofer et al. further teach:

said main light source is determined as a stable light source if a variance ratio of a difference between said at least two illumination values are smaller than a largest variance of a natural light source(See 608, figure 6. If the variance between two illumination values is smaller than the first threshold(i.e. the largest variance of natural light, 604), then it is determined that the main light source is a stable natural light source, column 7, lines 44-50.).

Consider claim 5, and as applied to claim 2 above, Hofer et al. further teach:

said variance ratio of a difference said at least two illumination values is greater than said greatest value of a natural light source and greater than said smallest value of an artificial light source, then said light source of environment is determined as an artificial light source(See 604, figure 6. The greatest variance of a natural light source is the same as the smallest variance of an incandescent artificial light source. Therefore, if the variance of the light source is above the largest variance of a natural light source and the smallest variance of an artificial light source(i.e. the incandescent source), then the main light source is determined to be an artificial light source such as an incandescent source or fluorescent source, column 7, lines 44-50.).

Consider claim 6, and as applied to claim 5 above, Hofer et al. further teach of determining a varying period according to said at least two illumination values(column 5, lines 37-58).

Consider claim 7, and as applied to claim 2 above, Hofer et al. further teach:

said main light source is determined as a stable light source if a variance ratio of a difference between said at least two illumination values are greater than said greatest variance of a natural light source and smaller than said smallest variance of an artificial value, and said difference of two illumination values with one of an illumination ratio of said two illumination values are smaller than a predetermining value(See figure 6. If the variance of the illumination values are greater than the greatest value of a natural light source(step 604), and smaller than smaller than the smallest value of the artificial fluorescent light source(610), and the variance is smaller than a predetermined value(i.e. threshold 2), then the main light source is determined to be a stable incandescent source, column 7, lines 44-50.).

Consider claim 8, and as applied to claim 2 above, Hofer et al. further teach:

said main light source is determined as an artificial light source if a variance ratio of a difference between said at least two illumination values are greater than said greatest variance value of a natural light source and smaller than said smallest variance value of an artificial value, and said difference of two illumination values with a selective

illumination ratio of two illumination values are greater than a predetermining value(See figure 6. The main light source is determined to be a an incandescent artificial light source if the variance of the illumination values is greater than the greatest value of a natural light source(604), smaller than the smallest variance of a fluorescent artificial light source(610), and greater than a predetermined value(i.e. threshold 1), column 7, lines 44-50.).

Consider claim 9, and as applied to claim 8 above, Hofer et al. further teach of determining a varying period according to said at least two illumination values(column 5, lines 37-58).

Consider claim 10, and as applied to claim 1 above, Hofer et al. further teach:

said light senor device is used for an captured image instrument(camera, column 3, lines 59-61), said light sensor device is to capture an image data according to said length of time exposure(column 4, line 35 through column 5, line 58).

However, Hofer et al. do not explicitly teach that the image capture instrument comes with a monitor for displaying the image data.

Yoshida et al. teach that the image capture instrument comes with a monitor for displaying the image data("display apparatus", column 12, lines 45-61).

Consider claim 18, and as applied to claim 17 above, Hofer et al. teach of a main illuminant method(see claim 17 rationale). However, Hofer et al. do not explicitly teach that said light sensor device is a CMOS sensor device.

Yoshida et al. is similar to Hofer et al. in that it is determined whether or not artificial illumination(i.e. flicker) is present(See figure 6, column 14, lines 42-67). Yoshida et al. is further similar in that multiple exposures are taken to make the determination(column 14, lines 58-63).

However, in addition to the teachings of Hofer et al., Yoshida et al. teach the concept of using a CMOS image sensor(column 9, lines 29-40).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use a CMOS sensor as taught by Yoshida et al. to perform the illumination determination method taught by Hofer et al. for the benefit of decreasing circuit size and power consumption(Yoshida et al., column 1, lines 25-57).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

NGOC YEN VU
SUPERVISORY PATENT EXAMINER